

REMARKS

Newly added claims 21-40 are all the claims pending in the application. Claims 1-20 have been canceled without prejudice or disclaimer. Claims 1, 4-11 and 13-20 stand rejected upon informalities and on prior art grounds. In addition, the drawings and specification are objected to. No new matter is being added. The Applicant respectfully traverses the objections/rejections based on the following discussion.

I. The Objections to the Claims

Claims 4, 5, and 13 are objected to because they depend on canceled claims. As such, claims 4, 5, and 13 have been canceled herein without prejudice or disclaimer. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw these objections.

II. The Objection to the Drawings

The drawings are objected to because the Office Action indicates that they fail to show every feature of claim 1. However, claim 1 has been canceled, and newly added claims 21-40 have been provided to correspond with the features indicated in the various drawings. As such, all claimed elements have proper support in the specification and corresponding drawings. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this objection.

III. The Objection to the Specification

The specification is objected to because the Office Action indicates that Paragraph [0011] is incorrectly worded. As such, paragraph [0011] has been amended to remove the offending language. Next, the Office Action, in its Response to Arguments section, indicates that pages 9-13 of the specification are being provided to the Applicant such that the Applicant may carefully read the attached papers to correct the notations " $1^{1/4}s$ " and " $1^{1/4}m$ ", which according to the Office Action, are widely used. It should be noted that the application as originally submitted to the USPTO, was filed electronically. It appears that during the transmission of the application the Greek symbol, μ was incorrectly transformed into the notation $1^{1/4}$. As such, the Applicant is hereby submitting a copy of the application as originally filed to indicate that, as originally submitted, the application did not contain the above notation. Thus, there appears to have been an error in the USPTO electronic filing process and/or software which resulted in the above notation. Regardless, in an effort to move the prosecution forward, the Applicant has amended pages 9-13, and specifically, paragraphs [0043], [0045], [0047], and [0050] through [0053] of the version erroneously transformed by the USPTO in accordance with the version the Applicant originally submitted.

Regarding page 15 of the Office Action, where the specification is indicated as containing erroneous statements, the Applicant reiterates that the specification, as written, is correct and requires no additional amending. While the Office Action supposes what is well known in the art, the Applicant maintains that the claimed invention including the description thereof provided in the specification offers a novel approach, which may be counter to conventional approaches, and thus is patentable based, in part, on these differences. The Applicant is not refuting that

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conventional devices work as the Office Action suggests, rather, the Applicant is simply saying that for the purposes of this application, and in the novel configuration provided by the claimed invention, the statements in the Office Action are incorrect. In fact, the Applicant has demonstrated that the claimed invention, as described in the specification, is workable, as further demonstrated by the results achieved by the invention graphically illustrated in Figures 7 and 8. Thus, the fact that the results achieved by the invention may be considered unexpected or unusual, and given the statements in the Office Action, perhaps even surprising, these all favor patentability of the claimed invention because up to now (i.e., up to the teachings of the claimed invention), those skilled in the art would have supposed the invention to be unworkable. In fact, the contrary is true; the invention is in fact demonstrably workable. Therefore, the invention utilizes a new principle of operation rather than following a conventional principle. Again, all of these factors favor patentability of the claimed invention. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw these objections.

IV. The Claim Rejections

A. The 35 U.S.C. §112, First Paragraph, Rejections

Claims 6 and 15 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement, and specifically that the recitation that "wherein said input signal causes said comparator to appear as an asymmetric inverting Schmitt trigger" is not disclosed in the specification. These rejections are traversed as explained below. First, claims 6 and 15 have been canceled without prejudice or disclaimer. In their respective places, claims 24 and 33 have been added to include the limitation, "wherein said input signal causes said

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comparator to have characteristics of an asymmetric inverting Schmitt trigger." Support for this feature of the invention is provided in several sections of the specification, and in particular in paragraphs [0014], [0047], and [0048]. Thus, the Applicant maintains that the enablement requirement has been satisfied. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

B. The 35 U.S.C. §112, Second Paragraph, Rejections

Claims 1, 4-11, and 13-20 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. These rejections are traversed as explained below. As such, claims 1, 4-11, and 13-20 have been canceled without prejudice or disclaimer, and newly added claims 21-40 have been provided using language in accordance with the suggestion in the Office Action, thereby removing the offending language from the claims. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw these rejections.

C. The Prior Art Rejections

Claims 1, 5-7, 10, 11, 15 and 16 stand rejected under 35 U.S.C. §102(b) as being anticipated by Taguchi et al. (U.S. Patent No. 5,557,221), hereinafter referred to as "Taguchi". Claim 16 stands rejected under 35 U.S.C. §102(b) as being anticipated by Thiel (U.S. Patent No. 5,808,496). Claims 17 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Taguchi. Claims 4 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Taguchi in view of Aspacio et al. (U.S. Patent No. 6,249,141), hereinafter referred to as

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"Aspacio". Claims 1, 4-11, 13-15 and 17-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Spitalny (U.S. Patent No. 5,574,401) in view of Manlove (U.S. Patent No. 5,498,986). Claims 17 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Thiel in view of Manlove. The Applicant respectfully traverses these rejections based on the following discussion.

However, as amended the newly added claims contain patentable features not taught in the prior art of record. Specifically, newly added independent claims 1 and 29, recite in part, "wherein one of said first or second trip point is set externally from said comparator, and wherein a majority of a cycle time of said comparator is spent in said digital configuration." Likewise, newly added independent claim 35 recites, in part, "wherein one of said trip points is external to said comparator, and wherein a majority of a cycle time of said comparator is spent in said digital configuration." These features are simply not taught or suggested in the prior art of record. Specifically, there is nothing to suggest that the prior art references teach that one of the trip points in their respective devices are provide external to the specific device provided. Additionally, none of the prior art references of record describe the cycling timing of an analog versus digital configuration of a comparator, let alone that the digital configuration constitutes a majority of the cycle time. This unique feature allows the claimed invention to achieve greater power savings than the conventional devices.

In fact, Figure 7 of the present application shows two comparison cycles with each cycle approximately 31 μ s in duration. In the first comparison cycle between times 0 μ s and 31 μ s, the inventive comparator is in the analog configuration between time 0 μ s to 5 μ s and time 30 μ s to 31 μ s for a total of 6 μ s, and in the digital configuration between time 5 μ s and 30 μ s for a total

of 25 μ s. This clearly shows that the comparator is in the power saving digital mode for more than 80% of the comparison cycle time. Thus, because the claimed comparator dissipates less power than the devices provided in the prior art references, the claimed invention is much more ideal for use in low power applications than are the devices provided in the prior art references. The claimed invention is able to dissipate less power than the devices in the prior art references because the tail current is minimal when the invention's comparator is in the digital configuration, which, as provided by Figure 7, occurs during more than half of the comparison cycle time (i.e., a majority of the cycle time).

Insofar as references may be combined to teach a particular invention, and the proposed combination of Taguchi with Aspacio, Spitalny with Manlove, and Thiel with Manlove, case law establishes that, before any prior-art references may be validly combined for use in a prior-art 35 U.S.C. § 103(a) rejection, the individual references themselves or corresponding prior art must suggest that they be combined.

For example, in In re Sernaker, 217 U.S.P.Q. 1, 6 (C.A.F.C. 1983), the court stated: "[P]rior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings." Furthermore, the court in Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 U.S.P.Q.2d 1434 (C.A.F.C. 1988), stated, "[w]here prior-art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. . . . Something in the prior art must suggest the desirability and thus the obviousness of making the combination."

In the present application, the reason given to support the proposed combination is

improper, and is not sufficient to selectively and gratuitously substitute parts of one reference for a part of another reference in order to try to meet, but failing nonetheless, the Applicant's novel claimed invention. Furthermore, the claimed invention, as amended, meets the above-cited tests for obviousness by including embodiments such as providing one of the trip points external to the comparator, and that a majority of a cycle time of the comparator is spent in a digital configuration. Additionally, none of the prior art references of record describe the cycling timing of an analog versus digital configuration of a comparator, let alone that the digital configuration constitutes a majority of the cycle time. As such, all of the claims of this application are, therefore, clearly in condition for allowance, and it is respectfully requested that the Examiner pass these claims to allowance and issue.

As declared by the Federal Circuit:

In proceedings before the U.S. Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. The Examiner can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. In re Fritch, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992) citing In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

Here, the Examiner has not met the burden of establishing a prima facie case of obviousness. It is clear that, not only does Taguchi, Spitalny, and Thiel individually fail to disclose all of the elements of the claims of the present invention, particularly, the cycle time comparison between the analog and digital configuration and the externality of one of the trip points as discussed above, but also, if combined with Aspacio, Manlove, and Manlove, respectively, fails to disclose these elements as well. The unique elements of the claimed

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invention are clearly an advance over the prior art.

The Federal Circuit also went on to state:

The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. . . . Here the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. Fritch at 1784-85, citing In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

Here, there is no suggestion that Taguchi, Spitalny, or Thiel, alone or in combination with Aspacio, Manlove, and Manlove, respectively, teaches an apparatus containing all of the limitations of the claimed invention. Consequently, there is absent the "suggestion" or "objective teaching" that would have to be made before there could be established the legally requisite "prima facie case of obviousness."

Furthermore, as previously mentioned even if Taguchi, Spitalny, or Thiel were to be combined with Aspacio, Manlove, and Manlove, respectively, they would still fail to teach the novel aspects of the invention. In fact, the claimed invention is different from Taguchi, Spitalny, Thiel, Aspacio, or Manlove, whether alone or in combination with one another, and moreover, the invention is unobvious in light of the restrictive teachings of the prior art references of record. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw these rejections.

V. Formal Matters and Conclusion

With respect to the objection/rejections to the specification and claims, the specification and claims have been amended, above, to overcome these objection/rejections. With respect to the objection to the drawings, the claims have been amended to overcome the resulting objection to the drawings. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the objections/rejections to the specification, claims, and drawings.

In view of the foregoing, the Applicant hereby submits that newly added claims 21-40, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,

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